



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DIVING SAFETY
BOARD

TO: Bruce Franklin, SHEMD Liaison to the EPA Diving Safety Board

FROM: Kennard Potts, Chairman EPA Diving Safety Board

SUBJECT: 2005 National Diving Program Annual Report

DATE: July 7, 2006

A handwritten signature in blue ink, likely belonging to Kennard Potts, is written over the "FROM:" line and extends into the "SUBJECT:" line. The signature is stylized and cursive.

Enclosed is the 2005 National Diving Program Annual Report. If there are any questions please contact me at 566-1267.

Enclosure

Environmental Protection Agency National Dive Safety Program

2005 Annual Report



July 2006

Executive Summary

The U. S. Environmental Protection Agency (EPA) conducts a wide range of diving activities in support of regional and national programs. Diving is conducted in rivers, lakes, harbors, and open ocean in support of monitoring, research, and emergency response. The EPA administers diving activities under guidelines established in the EPA Diving Safety Management Program in compliance with the Occupational Safety and Health Administration (OSHA) regulations. This report is developed in response the the requirements of EPA's Diving Safety Policy.

The EPA's National Diving Safety Program conducted 1,495 dives in 2005 involving seven EPA dive units and 89 divers. The following report indicates how the program is represented nationally and what activities each EPA dive unit conducts.

Questions regarding this report or about the EPA Diving Safety Program should be directed to:

**Kennard Potts, Chairman
EPA Diving Safety Program**

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Environmental Protection Agency National Dive Safety Program

2005 Annual Report

Introduction

This report is provided to the Environmental Protection Agency's (EPA) Safety, Health, and Environmental Management Division (SHEMD). in accordance with EPA's Dive Safety Policy. This policy and EPA's Diving Safety Manual can be viewed on line at the SHEMD site: URL: <http://intranet.epa.gov/oaintran/shemd/divmanuals/index.htm>.

This report represents a summary of the EPA's National Dive Safety Program (NDSP) activities, from October 1, 2004, through September 30, 2005. The annual reports from EPA Unit Dive Officer's (UDO) are the foundation for the information contained in this report. Copies of each UDO's Annual Report are available upon request.

The EPA's NDSP conducted 1,495 dives in 2005 (see Figure 1), involving seven EPA dive units, with 89 divers (Figure 2 plus sponsored divers). These dives were conducted in a variety of water bodies that include lakes, rivers, harbors, and open ocean. No serious injuries or accidents were reported.

Overview

EPA's NDSP is represented nationally by seven regional dive units, each under the supervision of a Unit Dive Officer. The dive units are located in (1) Region 1 (Narragansett Lab), (2) Emergency Response Team (ERT - Edison, NJ), (3) Region 3 Headquarters, (4) Headquarters (Washington/OSV Bold), (5) Region 4 (Athens Lab), (6) Gulf Breeze Lab (GB), and (7) Region 10 Headquarters. EPA's Western Ecology Division Lab (WED), in Corvallis, WA, will soon establish their own unit and are included in Figures 1 and 2.

Figure

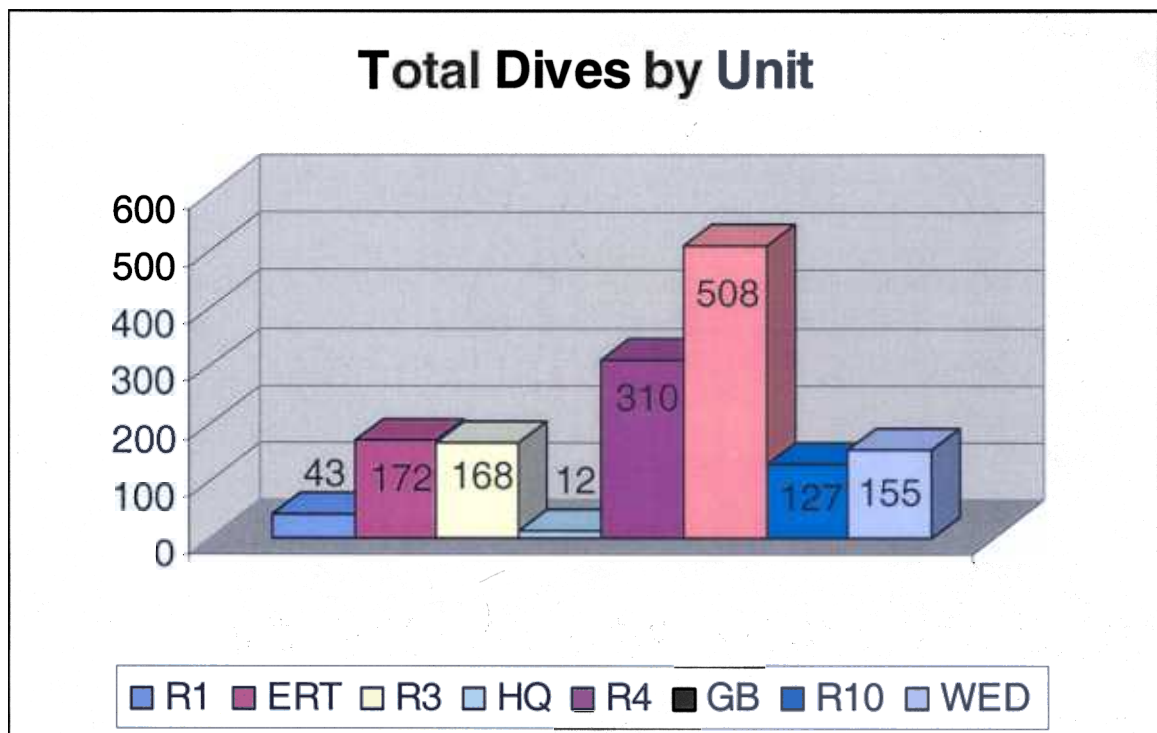
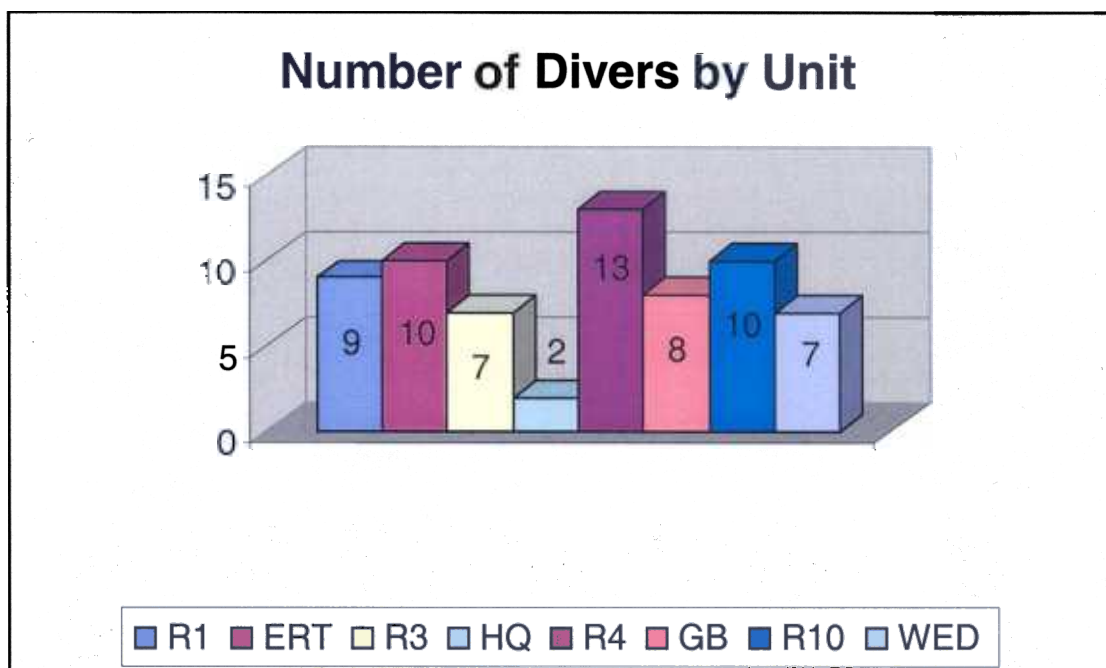


Figure 2



The population of EPA divers fluctuates annually, based on the number of divers that are currently qualified in the program. Qualification is based on medical compliance, diving proficiency, and other regulatory requirements.

It should be noted that four dive units are sponsoring EPA divers until they are able to establish their own independent unit:

- The Region 10 dive unit is sponsoring three divers from the EPA's Western Ecology Division.
- The Region 1 dive unit, at EPA's Atlantic Ecology Division (Narragansett), is sponsoring four divers in EPA's Region 1 Headquarters office.
- The Edison, NJ, Emergency Response Team is Sponsoring four divers from the EPA Regions 2, 5, 8, and 9.
- The Region 4 dive unit is sponsoring 12 divers from Region 6.

2005 EPA Diving Safety Board Meeting

The 2005 EPA Diving Safety Board meeting was scheduled to be held aboard the EPA Ocean Survey Vessel Bold, in September 2005. Due to shipyard delays, the vessel was not placed into service until mid-August 2005. This compressed the time available to meet EPA regional needs. Therefore the Dive Board meeting had to be postponed until October 2005. However, in October, the OSV Bold was placed into emergency response as a result of Hurricane Katrina. Thus the Diving Safety Board meeting was not held in 2005.

Training

The annual EPA Diver Training was conducted on May 9-13, 2005, at the EPA Diver Training Center, Gulf Ecology Division, Gulf Breeze, Florida. There were a total of 40 participants in the 2005 class. Sixteen divers were certified as Scientific Divers and five as Dive Master. A total of 175 dives were completed during the training session. Florida State University was the primary instructor for this year's class.

The program offered training in the use of dry suits, AGA masks, EXO-26 mask, Superlite-27 helmet, surface supplied air and NITROX. Additionally, participants utilized surface/wireless communications, underwater sonar, underwater metal detectors, tools, and search and recovery methods. Certifications were awarded for Divemaster, Scientific Diver, Diving Accident Management, and Oxygen Enriched Air (NITROX).

Reciprocity:

EPA participates in joint diving activities with a variety of outside organizations. These can include other federal and state agencies, universities, and private sector organizations. To facilitate these operations and to ensure safety, formal Reciprocity Agreements are established with these entities, based upon approved standards. These agreements are maintained for the calendar year and can be renewed annually as needed. In 2005, EPA established Reciprocity Agreements with:

- U. S. Department of Commerce; National Oceanic and Atmospheric Administration
- U. S. Department of Interior, National Biological Service
- U. S. Fish and Wildlife Service
- State of Alaska, Department of Fish and Game
- State of Florida, Fish and Wildlife Institute
- University of Georgia
- NOVA Southeastern University
- Mote Marine Laboratory

Dive Activities

Highlights of activities from each dive unit are provided in Attachment 1. The highlights are a summary of the Annual Reports from the Unit Dive Officers. Copies of individual dive unit annual reports are available upon request.

Attachment 1

Dive Unit Highlights

Regional Units:

1. Region 1 - Atlantic Ecology Division Dive Unit (Narragansett Lab):

Dive Activities included:

- Recovery of lost CTD
- Proficiency dives/training
- Benthic habitat assessments
- Videotaping sea floor conditions
- Collection of scallops
- Survey of Dredge Material Disposal Sites with Army Corps of Engineers
- Sea grass transplants

Dive Activity Locations:

- Scituate Harbor, MA
- Nahant Harbor, MA
- Mount Hope Bay, MA
- St. Georges River, Union, ME (Freshwater)
- Piscataqua River, Portsmouth, NH
- Rhode Island Sound, RI
- Gloucester Harbor, MA
- Narragansett Bay, RI
- Marthas Vineyard, MA

2. Edison Emergency Response Team Dive Unit:

The Emergency Response Dive Team (ERDT) located in Edison, New Jersey, functions as a single Dive Unit supporting dive operations in all 10 EPA Regions. Most of the Dive Team equipment and personnel are located in Edison, New Jersey, with two EPA/ERT divers also situated in Las Vegas, Nevada. The ERDT specializes in work on Superfund sites, contaminated water diving, surface-supplied helmet diving, and underwater search operations.

The majority of ERDT dives took place at Superfund sites around the country. Significant training events occurred in Gulf Breeze, Florida, and Dutch Springs, Pennsylvania. There were no national events which required the participation of ERDT or other EPA Dive Teams.

EPA divers have not been utilized during the Hurricane Katrina/Rita response. The ERDT conducted a total of 88 working dives, 47 training dives, and 37 proficiency dives throughout the year. This total includes EPA divers in Regions II, V, VIII, and IX, who may conduct work or training dives with the ERDT, but do not yet have a dive team in their respective regions.

Specific Operations:

- **Mussel recovery, East Brady Bridge, Pennsylvania, and Ohio River.** The ERDT assisted the U.S. Fish and Wildlife Service with the recovery of endangered mussels from the Allegheny River and the Ohio River.
- **McNutt Circle Pond Site, Carmel, IN.** The ERDT assisted EPA Region V in response to reports of possible drums of radioactive material being dumped in a residential stormwater retention pond.
- **Pyramid Lake Oil Spill, Gorman, CA.** In May 2005, the ERDT conducted diving operations in Gorman, California, to determine the extent of oil contamination in the sediments of Posey Cove. Pyramid Lake is located in the Angeles and Los Padres National Forests, approximately 60 miles northwest of Los Angeles, and is used as a Southern California drinking water source.
- **Manistique Harbor Site, Manistique, MI.** Diving operations were conducted in August and September, primarily to set out and recover about 10 sets of artificial substrates used to simulate possible PCB uptake.
- **Scallop Habitat Project, Lagoon Pond.** The ERDT assisted Russ Ahlgren and Marty Chintala with a diver survey of bay scallops, as well as their habitat and predator populations in Lagoon Pond.
- **Trenton Channel Drums Site, Trenton, MI.** On September 26-30, at the request of an EPA On-Scene Coordinator and a Criminal Investigation Division agent, the ERDT searched for drums in the Trenton Channel of the Detroit River near Grosse Ile, Michigan. A law enforcement diver pointed out the area where he saw several drums during a training dive. Using surface-supplied equipment and Superlite helmets, the Team conducted sweep searches of the river bottom covering an area of about 100 x 500 feet in size. Several small open-top drums and numerous old trash cans were located, but none of the containers were still intact, so no removal actions were recommended.

- **Black Lagoon Site, Detroit, MI.** Under the Great Lakes Legacy Act of 2002, EPA and the Michigan Department of Environmental Quality dredged over 100,000 cubic yards of contaminated sediments from the west side of the Detroit River. During application of clean sand and gravel, a weekend storm sunk a loaded barge situated in the site work area.

At the request of the EPA Region V On-Scene Coordinator (OSC), the ERDT that was conducting diving operations downstream at the Trenton Channel Drum Site (September 26-30), responded to the Black Lagoon Site.

Based on video, the response crew drafted a salvage plan for the barge. The ERDT also observed site operations and provided comments to the OSC regarding the capability of the Emergency and Rapid Response Services contractor as well as suggestions on how to properly and safely salvage the barge.

3. **Region 3 Dive Unit:**

- **Red Bird Subway Cars, Rehoboth DE-New York Transit Authority Subway and Light Rail.** Light rail and subway cars are being used for artificial reef programs. These cars were placed on the ocean floor two years ago off the coast of Delaware. Dives were performed to assess habitat development. Additional dives sampled control subway cars placed off Point Pleasant, New Jersey. Sampling was performed for asbestos, epifauna, fish, and structural integrity of the subway cars.
- **Training dives-Dutch Springs Quarry Allentown PA.** Dives were performed for dry suit and equipment checkout.
- **Pensacola training-** William Muir and Jim Gouvas attended the annual training in May, participated in the training and worked with dive masters. One Divemaster certification was awarded to Region 3 John Armstead, of Region 3.
- **Annual small boat training and demonstration of diving from boat at Fort Mifflin.** Two training dives in full face Aga masks and Viking Dry Suits were conducted as a demonstration activity.
- **Allegheny River mussel study.** Dives were performed to collect and transplant endangered mussels from a bridge replacement site. Very shallow long dives were performed in drysuits; 85 dives were completed in 15 days.
- **Ohio River mussel assessment survey.** A survey was conducted to assess the presence of zebra mussels and native species.
- **Combination of sport, training, and proficiency Dives.** Dive activities were performed during "other" artificial reef structures, at Pt. Pleasant and Atlantic City NJ. These structures were mostly wrecked or sunken ships used for artificial reefs off the coast of New Jersey. No samples were collected.

4. Headquarters Dive Unit:

Most activities involved the transfer and activation of the NITROX breathing gas system, gas fill station, and dive locker to the EPA Ocean Survey Vessel Bold (OSV Bold).

The OSV Bold is the EPA's only ocean survey vessel, and the ship supports all EPA regions in coastal and ocean dive operations. The ship supports small boat operations with three rigid hull inflatable boats, gas fill station, NITROX gas membrane system, 30 scuba cylinders, and a variety of underwater communications and support equipment in the vessel's dive locker.

The ship went into operation on August 2, 2005.

All Headquarters dives were performed as proficiency dives.

5. Region 4 Dive Unit:

- **Sediment oxygen demand/nutrient studies.** Sediment oxygen demand (SOD) rates are determined through the deployment of aluminum chambers over the bottom sediments. Nutrient exchange studies are conducted with the same chambers, and require a long incubation period, generally all day or overnight. Water samples are then pulled from the chambers by divers and analyzed for nutrients.
- **Ocean Dredged Material Disposal Sites.** These surveys are to determine the sediment, water quality, and benthic infaunal characteristics in areas within and adjacent to dredged material disposal sites. Divers collect sediment cores for laboratory analysis and benthic macroinvertebrate analysis, as well as taking bottom photographs and recording observations.
- **Deploy/retrieve instruments.** Deployment and retrieval of current meters for NOAA and EPA were conducted at ocean outfalls, and ocean dredged material disposal sites. A lift bag was utilized during the deployment and retrieval process.

6. Gulf Ecology Division, Gulf Breeze Dive Unit:

The Gulf Ecology Division (GED), in Gulf Breeze Florida, serves as the EPA's National Diving Center. In 2005 GED continued several scientific diving operations. Three major dive projects were conducted involving Coral Disease Surveys, Submerged Aquatic Vegetation, and Sediment Oxygen Demand. Diving in support of these projects and the EPA National Diver Training program accounted for a total of 508 individual dives from the last reporting date.

- **Coral disease survey:** EPA Divers collected coral condition data and photographed corals along the entire Florida Keys reef track and in the Dry Tortugas. Completion of the program provides an ability to estimate biological condition of coral populations. Estimates of condition can be used to compare species and populations of coral across reef types, study areas, and geographic regions. This data can be related to water quality, human influences, and bleaching/disease status. Species identification, colony size, and the proportion of live tissue on each colony are important components of the data. These observations lead to a variety of conventional and unique assessment endpoints that will assist resource managers in tracking changes in coral condition.
- **Submerged aquatic vegetation:** Divers are supporting submerged aquatic vegetation (SAV) research at the Gulf Ecology Division. Research included the SAV Model Validation work in collaboration with the Nutrients team and the Western Ecology Division (WED). Techniques and sampling methods from WED research in Texas are being applied to northern Gulf of Mexico seagrass beds to validate their applicability. Divers take sediment cores for sulfate reduction rates, pore water nutrients, and other sediment physical characteristics. Divers also deploy light meters, and hydrographic data recorders for each sampling period.
- **Sediment oxygen demand:** This research project was conducted in Pensacola Bay in the Summer of 2005, when temperatures are at seasonal maxima. Hence the oxygen demand from the water column and the benthos should be maximal, and the system is expected to be most vulnerable to hypoxia development. Eight stations were surveyed.

TRAINING: The Gulf Breeze Diver Training Center conducted its annual diver training program on May 9-13, 2005. The program offered training in the use of dry suits, AGA masks, EXO-26 mask, Superlite-27 helmet, surface-supplied air and NITROX, surface communications, wireless communications, U/W sonar, lift bags, U/W metal detector, U/W search and recovery, and use of U/W tools.

7. Region 10 Dive Unit:

Most of the Region 10 dive team's work this year was in support of Superfund remediation projects. There were 61 work dives, 49 training dives, and a total of 127 dives (including re-qualification and off-duty dives). During 2005, Region 10 completed the following work projects:

Lockheed Shipyard, Harbor Is., North side, Seattle, October 2004: SF site where contaminated sediment was removed by clam-shell dredging. The dive team inspected the area, and provided video documentation of a test capping area, as well as actual capped areas. Depth measurements of the cap were narrated onto the video as well as relayed to the surface through wireless communication or via tether hard-wire communication.

- **Hammersley Inlet and Oakland Bay near Shelton (SW Hood Canal), April 2005:** (2 events), project continues into FY06 – For the Washington State Department of Ecology, teams retrieved and/or deployed two “S-4” current meters and one Acoustic Doppler Current Profiler. Two of the meters located in high current locations required precise timing of dive operations with slack tide, using tethered divers. Data were collected for TMDLs for nutrients and bacteria.
Eagle Harbor, Bainbridge Is., May 2005: Multi-day support was provided to ORD-Cincinnati researchers investigating recontamination of Super Fund sediment caps. The study area on the Wyckoff sediment cap was selected based on previous groundwater movement studies by ORD. Divers obtained conductivity meter readings along transects that ran perpendicular to the shore.
- **East Waterway, Duwamish Delta area, Seattle, Washington, June 2005** – Super Fund site covering Terminals 30 and 25. Conducted several long transects, and narrating video of dredged area for the RPM. Also, inspected area around a major CSO (Harford St.).
- **Yaquina Bay, OR – June 2005.** One-day informal audit of ORD-Newport/Corvallis dive program including a working dive.
- **Duwamish River Fish Exposure Study, July 2005** - We again assisted Texas A&M researchers in their PCB and TPH exposure work. Caged fingerling salmon were placed at several stations (based on sediment data results) for a one-week exposure. Bottom sediment and water samples were also collected.
- **Lower Yakima River, eastern Washington, Aug. 05** – 2.5 days collecting aquatic plants for biomass measurements. Data will be used for the Lower Yakima River Eutrophication Study (five-year project with the state (Ecology), USGS, and EPA).

8. Western Ecology Division:

The Western Ecology Division of the Office of Research and Development (ORD) are conducting operations under the sponsorship of the EPA Region 10 dive unit.

Dive activities during 2005 consisted of proficiency, training, and working dives to study eelgrass beds and characterize benthic organisms.

Working dives included: photographs of root minirhizotron windows to quantify root growth; collecting eelgrass samples for biomass and biochemical analysis; collecting eelgrass samples for calibration of side scanning sonar data; and maintaining underwater data logging equipment. All working dives were conducted in less than 15 ft of water at slack tide.

Proficiency dives were performed as needed. One of our divers is involved with the Oregon Aquarium and conducted a number of dives to help with aquarium maintenance.

Training dives included teaching a recreational dive course to maintain one of our divers instructor credentials, and one diver attended the Scientific Diver course in Gulf Breeze in May.